REMARKS/ARGUMENTS

Examiner:

1. **Claims 1-12 are rejected under 35 U.S.C 102(b) as being anticipated by Steffan et al. (US Pat. 6512842 B1).**

Steffan et al. teaches a method and apparatus for the analysis of defects in semiconductor wafers. In doing so, a production lot of wafers are scanned and analyzed in an analysis tool, such as the SEM (scanning electron microscope), optical tools, or the FIB (fixed ion beam). The analyzed data is then stored in the defect management system, along with images of the wafers and assigned descriptors. Furthermore, a review station is present to assign refined descriptive labels to the images and this data is saved in the database. In addition to the defect inspection process, the ADC (automatic defect classification) protocol is used for classifying the types of defects. As per the limitations of the instant claims, a manual inspection is also taught by the prior art of record. Evidently, an operator is able to review the images at the review station and compare those reviewed to other images in the database. Upon having reviewed the retrieved images, the operator can revise the descriptors to refine the database.

Response:

Claim 1 has been slightly amended and rearranged to further bring out the essence of the claimed invention. Additionally, claims 2-12 are also slightly amended to comply with the amended claim 1.

In contrast to Steffan et al's invention of comparing descriptors between selected images, the claimed invention teaches a method of first providing a wafer with a plurality of defects generated from a first semiconductor process, performing a defect inspection on the wafer, and then utilizing a predetermined defect database to perform an automatic defect classification based on the defect detected, in which the predetermined defect database contains a defect classification recipe corresponding to a second semiconductor process.

Hence, the method of building a defect database of the claimed invention is significantly different from the method disclosed in Steffan et al's invention.

In other words, by analyzing characteristics of the defect via scanning electron microscope (SEM) and then comparing the result with the predetermined defect database, the method disclosed by the claimed invention can be widely applied to automatic defect classification system of different generations. For instance, if the first semiconductor process described in the claim were to be an etching process of the 0.13 μm process, the second semiconductor process can be the same etching process of previous generation, such as an etching process of the 0.15 μm process. By utilizing the same etching process of different generations, the method is able to obtain a much higher initial accuracy of classification as the second semiconductor process may already include the same design rule, pattern, and defect types as the first semiconductor process. As a result, much fewer samples are needed and much less time is required to complete a defect database.

According to Chapter 2112 in the MPEP, in relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. Since the inherency of predetermined defect database does not flow from the teachings of Steffan et al, the amended claims 1 through 12 should be novel based on the above analysis. Reconsideration of claims 1-12 is politely requested.

In addition, O'Dell et al (US Pat. 6826298) teaches an automated method of inspecting a semiconductor wafer in any form including whole patterned wafers, whole wafers, broken wafers, partial wafers, sawn wafers such as on film frames, JEDEC trays, Auer boats, die in gel or waffle packs, MCMs, and other wafer and die package configurations for defects. Nevertheless, O'Dell et al. also fails to teach the means of utilizing a predetermined defect database to perform an automatic defect classification based on the defect detected as demonstrated in the claimed invention, in which the predetermined defect database contains a defect classification recipe corresponding to a semiconductor process from the previous

generation. Hence, the method of building a defect database of the claimed invention is significantly different from the method disclosed in O'Dell et al's invention.

Moreover, Hsu et al (US Pat. 6643006) teaches a data management system for reviewing at least one layer of at least one semiconductor wafer of defects. The system includes a server connected to the first and second inspection devices and a review station connected to the server. In use, the first inspection device scans at least one layer of at least one semiconductor wafer so as to yield a first set of detected defects. In addition, the second inspection device scans at least one layer of at least one semiconductor wafer so as to yield a second set of detected defects. The first and second sets of detected defects are uploaded into a database in the server. The review station is then used to extract a sample of the first and second sets of detected defects from the database using at least one defect sampling condition. Similarly, Hsu et al fails to teach the means of utilizing a predetermined defect database to perform an automatic defect classification based on the defect detected as taught in the claimed invention, in which the predetermined defect database contains a defect classification recipe corresponding to a semiconductor process from the previous generation. Hence, the method of building a defect database of the claimed invention is significantly different from the method disclosed in Hsu et al's invention.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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Note: Please leave a message in my voice mail if you need to talk to me. The time in D.C. is 12 hours behind the Taiwan time, i.e. 9 AM in D.C. = 9 PM in Taiwan).